Taku Gardens FFA Meeting (1/20/08)

- 0830 – J. Blei shows emergency evacuation routes, introductions around the room
- 0840 – Joe Malen presents purpose of the meeting, to summarize 2008 activities and discuss potential plans for 2009 work.
- 0845 – T. Heikkila presents 2008 Jacobs work, questions and comments on presentation as follows:
    - Sharon: What is RRD? Range-Related Debris, includes shipping containers
    - Earl Crapps: VOC soil? Chlorinated solvents? Paints, fuels, solvents not chlorinated.
    - Did samples verify GORE Results? No, GORE was collected for health and safety purposes, not for full suite soil-gas analysis.
    - Joe Malen on EM61: Points out pipelines that have been pulled out that are showing up on most current EM61 map. A lot of what we are seeing will not be shown on final geophysical map. Applauds Jacobs for physical sweep of site to remove debris.
    - Brock: Things like culverts and fire hydrants are showing up as anomalies and should be accounted for in final.
    - Crapps: Did you hand-excavate in PCB area. Only around utilities, we were able to use equipment for the most part.
    - Sharon: What were concentrations at DDT hotspot? Not exactly sure at moment, were definitely above cleanup levels. Jeremy looking up concentration, 18.8 mg/kg.
    - Brewer: DDT soil only, no associated drums or debris? Absolutely nothing other than soil.
    - Malen discusses purpose of Sarah's ditch. We were afraid that water running through site could destroy houses, needed to make sure that it flowed in a controlled manner in the correct direction.
    - Gustamo: Foundations in PCB area are in disrepair and need to be removed as he has heard, but is not positive. If they come out, we should sample under them.
        - Joe: originally they were going to build them, but who knows, it may be an opportunity for future work.
    - Sharon: State is currently not getting involved in transfer of ownership of houses.
        - Joe: we need to get data in to make sure what is going on before transfers can happen.
    - Brewer: What about houses with suspected debris remaining under them?
        - Joe: That is what the subslab investigation was for, we'll talk about it tomorrow.

- 0925 – Break
- 0935 – CH presenting 2008 Soil Sampling Analytical Results Summary
    - Brewer – Are PRGs adjusted? Yes PRGs are adjusted by a factor of 0.1

    - What is the magnitude number in table? Maximum detect divided by screening level. If below 10, "We can see which way the Risk Assessment is going."
    - Brewer – Methylene Cloride in groundwater? No, and detections of methylene chloride are showing up for first time this year. Blaming it on the lab without actually blaming the lab.
    - Discussion of MW77 results – are they real? Yes, we aren't sure methylene chloride is real though.
    - Sharon – How were Sound Berm sample locations chosen? They were Decision Units where screening criteria was exceeded during MI Sampling last year.
    - No more questions.
- 0950 – move on to Recommended Approach for Identification of Exposure Areas
    - Sharon – is the 0-2 feet being sampled the current 0-2 foot zone? Is this more conservative than what we expect when people move in? Yes, in reality, we expect this zone to be buried by up to 2 feet of clean fill.
    - Brewer – Ambient Air Models, Volatilization from soil? Are we concerned about contamination coming from deeper than 2 feet? We should evaluate Inhalation. Response: It depends on the concentrations in air, whether it is acceptable or not. This is not anticipated to be a major pathway. We can use 0-10 foot data or use subslab data, whichever is acceptable. Will need to consider what is suitable, but using deep data could help them check the box.
        - Joe – Marty are you concerned about a child sitting on the ground inhaling contaminants? Yes, we should be able to check the box that it will not be a problem.
    - Earl – Wasn't some soil put back into excavations? Yes, but they will be filled with clean fill at the top.
    - Brewer – Do you aggregate data for entire site or for one yard/property? We are talking about aggregating data for the entire site, and will be able to say that there is acceptable risk in each and every yard?
    - Gustamo: Results suggest that this is a consolidated landfill. We know source of PCBs pretty much and DDT is to be expected as it is along drainage and site was a wetland. There aren't many question marks remaining. Want to create a map with all original sources and be able to show that what is being done in RA is conservative.
    - Earl – Will you have a residential cumulative risk estimate for each unit? How will you address specific homes that may have a higher risk than others? No it will be a site wide estimate.
    - Gustamo: We don't have data for what is under buildings. This may be a bigger consideration for the future than current data we are talking about. Response: RA will give a snapshot with subslab data.
    - Brewer: Worries that doing a site-wide approach dilutes sample results for one specific area. Joe Malen Response: Every yard has been sampled and there are results for each residence that are considered representative

of what is there. There is always a "what if", and they will be addressed as necessary.
    - Gustamo: We have the data to characterize everything except what is under houses. We are assuming there is nothing under them, but just don't know. We will probably have to deal with this in the future. We need definitive evidence before we can assume any house is safe. There is no documentation that under houses was excavated to proper depth and backfilled with clean material. If this is there, then we can make the assumptions for safety, but let's find this information. Be able to make legitimate assumptions and have backup to say that one house is probably clean or not. Joe Response: That is what the Subslab analysis is for. Contractor was not required to do these things. Makes argument that volume of what we have found versus volume of what could potentially be left, remaining stuff probably isn't much of an issue. Also, in 2008 we went through all potential known contaminated areas and addressed them. We will let the RI be the focal point to show that as problems came up, they were removed and nothing was left behind.
- 1035 – Break
- 1055 – Groundwater Presentation - Jeremy
    - Sharon – Can we rule out explosives in groundwater in areas where POL has exceeded? Jeremy's response: There were detections but not exceedances, so yes.
    - Joe – Clarifies that table shows detections in all samples, numbers in table do not represent number of wells with exceedances.
    - Sharon – TCE plume has not been delineated? Not to the Screening Level, it has to the Cleanup Level.
    - Gustamo – It looks like Vinyl Chloride skips around and is random. Response, Yes, and it doesn't necessarily correspond with any other contaminants. Highest detection – 0.84 ug/L in MW 56.
    - Brock asks for Jeremy to point out Capture Zone for Base Water Supply well. Jeremy does, and notes that new wells may be within capture zone if well is run at full bore. Joe thinks this water is more likely for fire suppression than consumption.
    - Gustamo – how many sampling events? Three
    - Sharon – Wants clarification for TPH Diesel. It is DRO, and will be clarified in their report.
    - Sharon – Where does 123TCP come from? It is from solvents, but is no longer produced.
    - Gustamo – are there plans for spring sampling? Bob says we will discuss tomorrow.
- 1120 – Detections of Explosives in GW Presentation – Jeremy
    - Brewer – are there any trends you have noted in only 3 sampling events? Jeremy – Not yet, but we want to analyze data in the future to see if there is.
    - Joe – CH is just getting their hands wrapped around GW data, and will let everyone know what is going on to eliminate any surprises.

- 1130 – Break for lunch.
- 1300 – Reconvene, any questions/comments on this morning's information????? Nothing
- 1305 – Going through FCS Remedial Investigation Report Outline (CH Document)
    - Joe – we will use all previous investigations as appropriate to feed this document.
    - Gustamo – requests time graph/chart to show sampling activities
    - Joe – Summary Maps, make them clear and not confusing. "Giant Headache Maps" can be attached at the end.
    - Sharon – Will you put together summaries of what data packages are presented where? Yes. CH has also pulled all information/data from their database regarding sample results of soils that have since been removed.
    - Joe – within report, it will be stated which sources of contamination are where and when they were removed? Yes, section 5.3 will do this. All data will be cited? Yes.
    - Gustamo – Show how areas of contamination are shrinking/remediated/etc. Make a smooth transition that shows progress over the past 4 years. Need to zero in on few remaining hotspots, and limit COCs if possible.
    - Brewer – is data quality validation provided in report? Typically a third party validation occurs and we would present a summary? Brock doesn't think the Corps is doing anything of the kind. Joe: if there is a summary report of data validation, we would use it/provide it in RI. Jeremy also didn't plan to do anything with this, but says they are willing to, if requested.
    - Gustamo – will you "do away" with contaminated areas in the Nature and Extent Section? Yes, should eliminate COCs and AOCs at the end of this section.
    - Sharon – Are you doing this on a house by house basis, how is data grouped in Section 5.1.1? Nature and extent will not be evaluated by house, but will be grouped together as appropriate (by proximity, by type of sample, maybe grouped by above or below water table, etc.)
    - Joe: Word things like this; "This amount of stuff was removed as a result of the investigation…." Investigation has driven everything in this report.
    - Joe: Will you include Northwind data in Soil Gas/Vapor intrusion section? No, their data will be presented in previous investigations section.
    - Brewer – not comfortable with site-wide exposure area. Some areas will be more utilized than others, and aggregating data from entire site may not be appropriate.
    - Gustamo – as far as surface soil data goes, he is comfortable with the assumptions and results of the risk assessment as we speak.
    - Earl – Clarify Aggregate! Response: For point by point, you will use point by point data. For site-wide risk they will calculate a 95% UCL site-wide concentration for each contaminant for risk assessment purposes.

    - So are you ranking houses as far as contamination goes or not? Joe King: I don't see a difference (significant) in any of the data collected so far for all the different houses. If vapor intrusion data varies significantly, then we would have to take that into consideration.
    - Gustamo – What is under houses, needs to be addressed. Terry: We will address this in our report.
    - Any other questions? Nope. Let's take a break!
    - Gustamo – have we figured out everything we can do to decide if there are houses with stuff under them. Heikkila and Beth: We should be able to overlay current house layout over 2004 geophysical and rule houses out, or to say there is still stuff.
- 1500 – Discuss tomorrow's agenda, break.
- 1530 – CH, Jacobs, Army continue to meet.
- Downhole borehole evaluations are only an interpretation of data being spit out, may not be a reliable way to investigate areas. Beth will give a recap on this stuff tomorrow.
- Distinguish between ruptured and intact drums in reporting.
- Joe King: How many houses have known stuff under them still? Heikkila – 6. (15, 17, 22, 24, 48, and 49).
    - Malen – Have these houses passed vapor intrusion tests? CH – Yes.
    - Malen – is BLD 49 only one left with for sure a drum under it? Jacobs – Yes.
- Malen – HRV Systems may provide air changes to houses. Can we have Jacobs evaluate whether they are operational and functional?
    - King – need to know attenuation factor of air contaminants in houses. We can adjust that to make sure the system is functioning consistently. We need to actually model worst case scenario with a leaking drum to see if the systems would take care of everything.
    - Dennis – Indoor models are good. Only at BLD 11 there was a detection of 1,2Dibromo3somethingpropane (a crop fumigant) in subslab soil gas sample. Not even sure it isn't just noise. Needs to check with chemists to make sure it is a real detection or not. He thinks we fall below the risk level for all houses as we speak.
    - King – What if we determine this stuff is in the house? Malen – turn it into a coffee shop!
    - We should re-sample this one, may be an anomaly.
    - If issues remain, could dig sumps next to problem houses to keep air from going into house.
    - Joe – what are the chances that chemicals you are detecting in buildings and in ambient air are from contamination in soil? Dennis – not very high. Is probably from offsite source. Only 1 in 140 GW samples have exceeded screening criteria for benzene.
    - Chloroform and PCE have been detected in a couple instances at very high levels under the house, but low levels in the house.
    - Joe – I don't know how we are going to be able to keep the air modeling stuff reasonable.

- King – What about Sharon's objection to not sampling at every house? Joe – I don't' remember how we got to sampling the way we did. Jeremy – We needed this data to complete the Baseline Risk Assessment. It seemed that the number of samples collected were sufficient to do what was required for RA. Was assuming that risk was going to be assessed by subarea rather than by each house.
- Joe – then what is our tripping point/concern? To make sure Sharon knows the site has been covered for surface samples, we need a figure that shows all 215 or so sampling locations. They should be more comfortable with the density of those locations over what CH is showing in their figure now.
- Joe – We talked about going through all documents produced since 2004. Can we task Jacobs with going through all reports to make sure all data is incorporated into everything? Brock says there is a Shannon Wilson Report from 2003 from installation of 5 wells, asks Beth if she knows where it is, maybe she will try to locate it? Should include soil data.
- Brock – There is a table that guided everything that had been done in the past. Should be in the PSE I and is our tie to filling data gaps, or proving data gaps have been filled. We need to document how and why everything in the table has been dealt with on a house by house basis to keep regulators happy.
- King – At Ft. Lewis, Army failed to sample inside housing for contaminants and said everything was ok. Later had to go back and sample inside air. Luckily everything was clean. Jeremy suggests running piping to outside of house that would be representative of what needs to be sampled, then can sample air without entering house.
- Malen – Jack and Sharon brought up the fact that there are higher concentrations for some contaminants in one season than another in Fairbanks at another site? Huh? Sampling schedules have been adjusted to account for this by FES. CH – you need 5 sampling events to get to this point.
- Malen – MEC Stuff Thursday – Give them the report, seems good to go.

1/21/09

- 0900 – Meeting commences
- 0905 – Dennis to present October 2008 Sub-Slab Soil Gas/Ambient Air Investigation
    - Gustamo – Was there any variation with results between sampling events? Response – We will get to that in a little.
    - Brewer – Was MDL study performed after samples were collected? After the October event but before the December event.
    - As detection levels are above screening levels, results are "U" flagged.
    - Earl – Would these numbers (air results) change in June vs. October? Yes, you'll see they change all the time.
    - Dennis is presenting several different scenarios. Showing how ambient air is often a source of contamination inside buildings, but not sub-slab. Shows that sometimes indoor air is contaminated from common construction materials such as paint, and sub-slab and ambient air are unaffected. Sometimes sub-slab results are high, but inside house is low and comparable to ambient air levels.
    - Gustamo – These are new houses, things could change (dissipate) over time. Response – we need to interpolate between different chemicals. Looking at available data and seeing if there are surrogates that can be connected to other compounds.
    - Earl – How do you address whether sources in sub-slab could enter home through cracks in foundation in future? Response – They may already be entering through hairline cracks, no answer for if there were an earthquake that cracks foundation.
    - Brewer – Did you collect temperatures and atmospheric pressures? Yes.
    - Brewer – houses are similar, but there are different blueprints. CH picked houses from all different floorplans to cover for differences.
    - Brock – Does the base emphasize proper storage of chemicals such as gasoline? This could be the biggest contributor to indoor air pollution. Joe – They tell people what to do, but it doesn't sound like anything is enforced. Inspections are only performed upon entrance or exit to moving in.
    - Gustamo – Are we anywhere near toxic levels for anything? Response – No, but this needs to be analyzed for Risk Assessment purposes as there are detections in sub-slab and ambient air.
    - Sharon – Define sufficient separation. Response –
    - Earl – how do you determine acceptable attenuation factors? By order of magnitude? Response – Use EPA database, and it is basically a judgment call.
    - Gustamo – on 4 analytes, where they scattered detections or were they specifically detected in certain houses? Response – Haven't had opportunity to evaluate data yet. Data just became available last week.
    - There is no evidence based on pressure differential between indoor and sub-slab that sub-slab concentrations will affect indoor concentrations.

Pressure sub-slab is slightly higher, indicating that it could seep into house, but not at a level where they would expect the house to suck air in from below.
    - Apparently, colder temperature and ventilation system affect detections of compounds as only 29 compounds were detected in December while 40 were detected in October.
    - Dennis is comparing concentrations on site to changes in EPA and DEC screening levels based on cancer risk. A couple compounds on site exceed new screening levels, but slightly.
    - Gustamo – How close is west fence to old garages? Ambient air concentrations may come from idling cars just off site.
    - Joe – Where did sub-slab method come from? What guidance for sampling and analysis? Response – Leak detection method which is what regulators are requiring, and other guidance. Have developed SOPs in accordance with EPA.
    - Gustamo – Didn't measure Freon. Don't know if it is dissipating over time. Response – did have one detection and it is on list to be analyzed for. Freon is considered a TIC, but think they are well below risk based levels.
    - CH doesn't currently see any potential data gaps.
    - Joe – how soon before you have handle on this? Couple weeks.
    - Frankie Jewel (Tech Law) – separate report, or rolled into RA? Will evaluate how to present data.
    - Gustamo – would be convenient to be able to nail areas to be looked at to certain subareas.
    - Brewer – detection levels are still above screening levels, how will you address this in the RA? Will have to address them as uncertainties. Will not use detection limits as concentrations. Sometime the levels are close enough that they should be able to assume the compound is not present. May be able to present a story that states chemicals in this category will not be of concern based on how low screening levels are compared to risk-based levels.
- 1040 – Jacobs presenting 2009 planned activities.
    - Gustamo – if your new geophysical shows anomaly, will you address it this year? Yes.
    - Sharon – how do you clear lamp post holes? In accordance with 2008 WP, will clear to max depth and with required for installation. If there is contamination or MEC, it will be removed.
    - Feb. Geo will clear 2008 excavations.
    - Brewer – what surface water data goes into RA? Joe – samples collected near straw bales in 2007, no surface water or sediment collected in 2008. Will use PRSE data and recap it in RA, will not collect more data.
    - Gustamo and Sharon want a spring GW sampling event. Yes we can!
    - Gustamo – Surface soil sampling, assumes current samples are adequate, but maybe Army should consider collecting at least one sample at every house while there is time to ensure that every house is sampled and they

can honestly say that. Write RI now assuming this data will not change anything, and update as necessary.
    - Joe – Asks EPA and DEC if they would like a meeting to present results that are going into RI before field work occurs in 2009. Response is Yes, that would be ok.
- Earl to CH – Do you think methylene chloride requires further investigation given high levels, do you really think it can be explained away? Jeremy – it is only in soil and is only detected in one sample delivery group. It hasn't been seen before, and for now, it seems premature to assume it requires further investigation. Should have an explanation for this within the next week and will present to all who care.
- 1200 – Meeting adjourned, will meet tomorrow at 0900.

1/22/09

- 0900 – Beth presents Resistivity Investigation at Building 49
    - 3D IP was not performed under the building and may be able to tell more definitively whether there is debris under the building than the 3D Resistivity
    - Beth will e-mail copies of presentation
    - Beth thinks IP may be best approach
    - It was suggested that these tests be run in PCB area under foundations that are going to be removed to see how well the data turns out.
- 0930 – Heikkila presenting summary of MEC investigations
    - Gustamo – Used for site investigation techniques, doesn't agree that under 75 mV is harmless.
    - Guy Warren is upset that Jacobs claims ALL anomalies over 75mV were investigated, but not ALL orange (over75) were investigated. This does not correspond with what the work plan says was going to be done. Response – All appreciable anomalies were investigated. It was also pointed out that a majority of the remaining orange spots are utilities. These will be marked and accounted for on future figures. Joe instructed Jacobs to remove the word all from the description.
    - Guy Warren – how did you calculate 10% for QC check? Response – Did 10% of total surface area, and skipped over known utility locations. This actually made it so that more than 10% was checked.
- 1000 – Heikkila presents remaining debris under buildings summary
    - Guy Warren – it would help to show boundaries of excavations in EM61 survey map. Noted.
    - Brewer – were any explosive constituents detected? Marilyn – they were detected in some samples but don't think there were any exceedances.
    - Gustamo isn't sure it is a safe assumption that all drums under BLD 49 will be crushed and empty as what was dug out. Make sure you separate professional judgment from suggestions and opinions in the RI Report. Feasibility study needs to account for uncertainty in assumptions that potential drums remaining below buildings do not pose any risk to human/ecological health.
    - Gustamo – is there any timeline for disposal of all this stuff? If you have good history of what area was used when, it could be helpful in making assumptions.
    - Brewer – historic aerial photos? Gustamo – yeah, that's what I'm talking about. Joe – describing what was in areas from east to west over time. He seems to know the history the best and would be a good source of info, if needed, for reporting. He thinks that there is less buried stuff on the east side than the west, as the west was pretty much an open field for the duration of operations in the area.
    - Frankie – did EPA do epic study? Joe and Gustamo – no, not to date.
    - Guy requests geo-referenced photos from Beth, she replies that he request them from Mike Davis. He also wants a CD with GIS data.

- Brewer – xylenes drum – you shouldn't say it was only xylenes if it was a mixed waste drum. She is now more interested in other constituents of what was in drum. It has already been stated several times during this meeting that analytical data is available for this and will be provided in the report.
- Gustamo – were soil hits presented removed? No, these results characterize what is still in the excavation.
- Gustamo – maybe you can correlate what is at the landfill from construction to what may or may not remain on site?
- Gustamo – are there still anomalies we are interested in? what are the data gaps for next year. Is there an advantage in spending more money to do EM61 across the whole site? Joe – Army admits there is metal remaining. Is considering applicability of 3D IP and will discuss it with Beth. Gustamo thinks there may be value in doing this.
- Sharon – Why has the opinion changed on removing drums under BLD 49? Col. Johnston had asked when they were going to be removed, now they aren't. What changed? Joe and Brock – we can't dig under the houses without compromising integrity. This is the driver for doing the sub-slab analysis anyway so that we know there is little to no risk.
- Gustamo seems to buy into the idea that it may be acceptable to leave drums. As you build a case that it is likely a pinhole leak, it is unlikely that anything catastrophic is going to happen.
- Gustamo – I thought there was going to be a site-wide EM61. There could be data gaps by splicing all investigations together. Beth, do you think there is any advantage to doing an overall EM61? Response – No, only where the excavations were.
- Guy wants a 100% EM61 map to show clean throughout.
- Joe goes into speech to proclaim there is no way we are going to come up with a clean site. We have removed everything we consider to be bad. We all discussed years ago which areas we were going to look at and have completed that. Everything left is "ash and trash". Army is proposing that this is done.
- Guy – you can't say with statistical confidence that you have removed everything that poses a threat. Brock – as discussed before, there are utilities and other stuff that will have to be there. These will be marked, and the figures will be cleaner.
- Guy – you said you were going to do a full surface clearance. Joe – we pretty much did, everything visible was removed several times.
- Gustamo – then your EM map shows more anomalies than what is really there. Joe – I am willing to accept that.
- Same points that have been discussed several times continue. Only places MEC was found was in areas exceeding 75mV. Guy – but you have left a lot of 75 mV without investigation. Joe – we selected areas of concern together. The only places there was DMM was in Area A, where we knew it would be.

- Gustamo – 75mV was strictly a site investigation strategy. Don't mix that interpretation with fact that something is clean or that 75 is a definitive cutoff. Joe – everything we have done has been based on real observations and he thinks that the Army has done what is required to protect itself.

- 1145 – Break for lunch
- 1300 – Resume meeting
  - Heikkila plans to distribute EM map after February event so everyone knows what is going on.
  - Sharon – Schedule – Will request extension for review of CH RI.
    - Drum and Debris RI will go out 1st week in March
    - Have to go over what Jacobs is doing in 2009 again with Sharon. See above or presentation from yesterday for details. There are currently no plans for road/sidewalk installation, only for lamp post location clearance.
    - EPA concerned about backfilling holes, Brock needs to point out again that the group does still plan to talk about work for upcoming year in March or April, as already discussed yesterday.
  - Gustamo – unresolved issues need consideration and may alter summer field schedule.
  - Sharon – do we need GW MWs north of 15 and 17? Response – we do, just not within 100 feet. There won't be one within this area, if at all, until the excavation has been backfilled.
  - Brock – points out that there is a meeting scheduled for February to discuss CH data.
  - Brock – do you want a Tech Memo summarizing all groundwater data collected to date? It could be presented in March or April. Do you want it to just be put in the RI. Guy – the more data you give us earlier, the better.
  - Joe will send out the workplan used to discuss soundberm sampling in 2008
  - Gustamo – Can you give us a schedule for RI stuff? Yes, the schedule was roughly worked out yesterday and will be sent out.
  - Gustamo wants it to be recognized in admin record that Joe runs this project.
  - Brock – Data validation – Want to validate all PCB data, and mostly 2007/2008 for everything else. Wants to know if she thinks she needs to do all 05 and 06 data as well. They will talk about this on their own tomorrow.
- 1400 – done with regulator portion of the meeting, they leave.
- 1420 – Here we go
  - King – Confused why Sharon was concerned with PCBs. Joe – came from out of the blue, completely new concern.
  - Joe to check when sound berm sampling tech memo came out.
  - Brock points out trends with MEC, always in big holes with other MEC, never in small holes with only one or two pieces. Also always in Area A.

    - King – Asks Beth if she is going to bury some metal objects somewhere for QC purposes over the summer. Yes, probably somewhere at Wainwright.
    - King – afraid that if we do IP under buildings that it won't be accepted. Joe – if we let Beth do a test to see if it works, it would probably be more acceptable. Beth doesn't think IP data is reliable enough to tear down a house based on results.
    - Joe – the more detail in the reports, the better.
- 1500 - Done